We claim:

1. A process for coating a moving substrate of indefinite length comprising conveying the substrate past a coating applicator and to a dryer or curing station in a close-coupled enclosure or series of interconnected close-coupled enclosures while supplying the enclosure or series of enclosures with one or more streams of conditioned gas flowing at a rate sufficient to reduce materially the particle count in a close-coupled enclosure.

2. A process according to claim 1 comprising conveying the substrate from the coating applicator through the dryer or curing station in a close-coupled enclosure or series of close-coupled enclosures.

3. A process according to claim 1 comprising conveying the substrate from the coating applicator through the dryer and curing station in a close-coupled enclosure or series of close-coupled enclosures.

4. A process according to claim 1 comprising conveying the substrate in a close-coupled enclosure or series of close-coupled enclosures from a pre-coating station to the coating applicator.

5. A process according to claim 1 comprising conveying the substrate in a close-coupled enclosure or series of close-coupled enclosures from a pre-coating station through the dryer or curing station.

6. A process according to claim 1 comprising conveying the substrate in a close-coupled enclosure or series of close-coupled enclosures from a cabinet containing an unwind reel to a cabinet containing a takeup reel.

7. A process according to claim 1 comprising coating the substrate and protecting it from particulate contamination until the coating can solidify.

8. A process according to claim 1 comprising coating the substrate and not exposing it to ambient air from at least the time the coating is applied until the coating solidifies.

9. A process according to claim 1 wherein at least two close-coupled enclosures have different pressures, temperatures, average headspaces or average footspaces.

10. A process according to claim 1 comprising maintaining or establishing a positive pressure in at least one close-coupled enclosure and maintaining or establishing a negative pressure in at least one other close-coupled enclosure.

11. A process according to claim 1 comprising supplying a conditioned gas stream to at least the first in a series of interconnected close-coupled enclosures whereby the conditioned gas is carried along with the moving substrate to a downstream close-coupled enclosure or pushed to an upstream enclosure or process.

12. A process according to claim 1 comprising supplying conditioned gas streams to a plurality of close-coupled enclosures and withdrawing gas from a plurality of close-coupled enclosures.

13. A process according to claim 1 comprising supplying conditioned gas streams to each in a series of interconnected close-coupled enclosures.

14. A process according to claim 1 comprising sealing the moving substrate at the upstream and downstream ends of a series of interconnected close-coupled enclosure.

15. A process according to claim 1 comprising maintaining a pressure gradient of at least about -0.5 Pa or higher in a close-coupled enclosure.

16. A process according to claim 1 comprising maintaining a positive pressure gradient in a close-coupled enclosure.

17. A process according to claim 1 comprising connecting first and second enclosures having a material difference in their respective operating pressures via a close-coupled enclosure comprising a transition zone.

18. A process according to claim 17 wherein the first enclosure comprises a close-coupled enclosure, the second enclosure comprises an oven and there is a ten-fold or greater pressure difference between atmospheres in the first and second enclosures.

19. A process according to claim 1 wherein the total of the average headspace and average footspace in a close-coupled enclosure is 10 cm or less.

20. A process according to claim 1 wherein the total of the average headspace and average footspace in a close-coupled enclosure is 5 cm or less.

21. A process according to claim 1 wherein the total of the average headspace and average footspace in any close-coupled enclosure is 3 cm or less.

22. A process according to claim 1 wherein a first chamber having a gas introduction device is positioned near a control surface, a second chamber having a gas withdrawal device is positioned near the control surface, the control surface and first and second chambers together define a region wherein adjacent gas phases possess an amount of mass, at least a portion of the mass from the adjacent gas phases is transported through the gas withdrawal device by inducing a flow through the region, and the mass flow can be segmented into the following components:

M1 means total net time-average mass flow per unit of substrate width into or out of the region resulting from pressure gradients,

M1' means the total net time-average mass flow of a gas per unit width into the region through the first chamber from the gas introduction device,

M2 means the time-average mass flow of conditioned gas per unit width from or into the at least one major surface of the substrate or coating into or from the region,

M3 means total net time-average mass flow per unit width into the region resulting from motion of the material, and

M4 means time-average rate of mass transport through the gas withdrawal device per unit width.

23. A process according to claim 22 wherein **M1** has a value less than zero and greater than -0.25 kg/second/meter.

24. A process according to claim 22 wherein **M1** has a value less than zero and greater than -0.10 kg/second/meter.

25. A process according to claim 1 comprising flowing a stream of conditioned gas at a rate sufficient to reduce a close-coupled enclosure particle count by 75% or more.

26. A process according to claim 1 comprising flowing streams of conditioned gas at a rate sufficient to reduce the close-coupled enclosure particle counts by 90% or more.

27. An apparatus for coating a moving substrate of indefinite length comprising a coating applicator, dryer or curing station and substrate-handling equipment for conveying the substrate past the coating applicator and through the dryer or curing station, the substrate being enveloped from at least the coating applicator to the dryer or curing station in a close-coupled enclosure or series of close-coupled enclosures supplied with one or more streams of conditioned gas flowing at a rate sufficient to reduce materially the particle count in a close-coupled enclosure.

28. An apparatus according to claim 27 wherein the substrate is enveloped from the coating applicator through the dryer or curing station in a close-coupled enclosure or series of close-coupled enclosures.

29. An apparatus according to claim 27 wherein the substrate is enveloped from the coating applicator through the dryer and curing station in a close-coupled enclosure or series of close-coupled enclosures.

30. An apparatus according to claim 27 wherein the substrate is enveloped in a close-coupled enclosure or series of close-coupled enclosures from a pre-coating station to the coating applicator.

31. An apparatus according to claim 27 wherein the substrate is enveloped in a close-coupled enclosure or series of close-coupled enclosures from a pre-coating station through the dryer or curing station.

32. An apparatus according to claim 27 wherein the substrate is enveloped in a close-coupled enclosure or series of close-coupled enclosures from a cabinet containing an unwind reel to a cabinet containing a takeup reel.

33. An apparatus according to claim 27 wherein an unsolidified coating on the substrate is protected from particulate contamination until the coating can solidify.

34. An apparatus according to claim 27 wherein the substrate is coated and not exposed to ambient air from at least the time the coating is applied until the coating solidifies.

35. An apparatus according to claim 27 wherein at least two close-coupled enclosures have different average headspaces or average footspaces.

36. An apparatus according to claim 27 wherein a conditioned gas stream is supplied to at least the first in a series of interconnected close-coupled enclosures and the conditioned gas is carried along with the moving substrate to a downstream close-coupled enclosure or pushed to an upstream enclosure or process.

37. An apparatus according to claim 27 wherein conditioned gas streams are supplied to a plurality of close-coupled enclosures and gas streams are withdrawn from a plurality of close-coupled enclosures.

38. An apparatus according to claim 27 wherein conditioned gas streams are supplied to each in a series of interconnected close-coupled enclosures.

39. An apparatus according to claim 27 having seals with respect to the moving substrate at the upstream and downstream ends of a series of interconnected close-coupled enclosure.

40. An apparatus according to claim 27 wherein a close-coupled enclosure has a pressure gradient of at least about -0.5 Pa or higher.

41. An apparatus according to claim 27 wherein a close-coupled enclosure has a positive pressure gradient.

42. An apparatus according to claim 27 comprising first and second enclosures having a material difference in their respective operating pressures connected by a close-coupled enclosure comprising a transition zone between the first and second enclosures.

43. An apparatus according to claim 42 wherein the first enclosure comprises a close-coupled enclosure, the second enclosure comprises an oven and there is a ten-fold or greater pressure difference between atmospheres in the first and second enclosures.

44. An apparatus according to claim 27 wherein the total of the average headspace and average footspace in a close-coupled enclosure is 10 cm or less.

45. An apparatus according to claim 27 wherein the total of the average headspace and average footspace in a close-coupled enclosure is 5 cm or less.

46. An apparatus according to claim 27 wherein the total of the average headspace and average footspace in any close-coupled enclosure is 3 cm or less.

47. An apparatus according to claim 27 wherein a first chamber having a gas introduction device is positioned near a control surface, a second chamber having a gas withdrawal device is positioned near the control surface, the control surface and first and second chambers together define a region wherein adjacent gas phases possess an amount of mass, at least a portion of the mass from the adjacent gas phases can be transported through the gas withdrawal device by inducing a flow through the region, and the mass flow can be segmented into the following components:

M1 means total net time-average mass flow per unit of substrate width into or out of the region resulting from pressure gradients,

M1' means the total net time-average mass flow of a gas per unit width into the region through the first chamber from the gas introduction device,

M2 means the time-average mass flow of conditioned gas per unit width from or into the at least one major surface of the substrate or coating into or from the region,

M3 means total net time-average mass flow per unit width into the region resulting from motion of the material, and

M4 means time-average rate of mass transport through the gas withdrawal device per unit width.

48. An apparatus according to claim 47 wherein **M1** has a value less than zero and greater than -0.25 kg/second/meter.

49. An apparatus according to claim 47 wherein **M1** has a value less than zero and greater than -0.10 kg/second/meter.

50. An apparatus according to claim 27 wherein a stream of conditioned gas flows at a rate sufficient to reduce a close-coupled enclosure particle count by 75% or more.

51. An apparatus according to claim 27 wherein the streams of conditioned gas flow at a rate sufficient to reduce the close-coupled enclosure particle counts by 90% or more.

52. A process for coating a moving substrate of indefinite length comprising conveying the substrate past a coating applicator and to a dryer or curing station in a close-coupled enclosure or series of interconnected close-coupled enclosures while supplying the enclosure or series of enclosures with one or more streams of conditioned gas flowing at a rate sufficient to cause a material change in a physical property of interest for the atmosphere in a close-coupled enclosure.

53. An apparatus for coating a moving substrate of indefinite length comprising a coating applicator, dryer or curing station and substrate-handling equipment for conveying the substrate past the coating applicator and through the dryer or curing station, the substrate being enveloped from at least the coating applicator to the dryer or curing station in a close-coupled enclosure or series of close-coupled enclosures supplied with one or more streams of

conditioned gas flowing at a rate sufficient to cause a material change in a physical property of interest for the atmosphere in a close-coupled enclosure.